

Attachment A

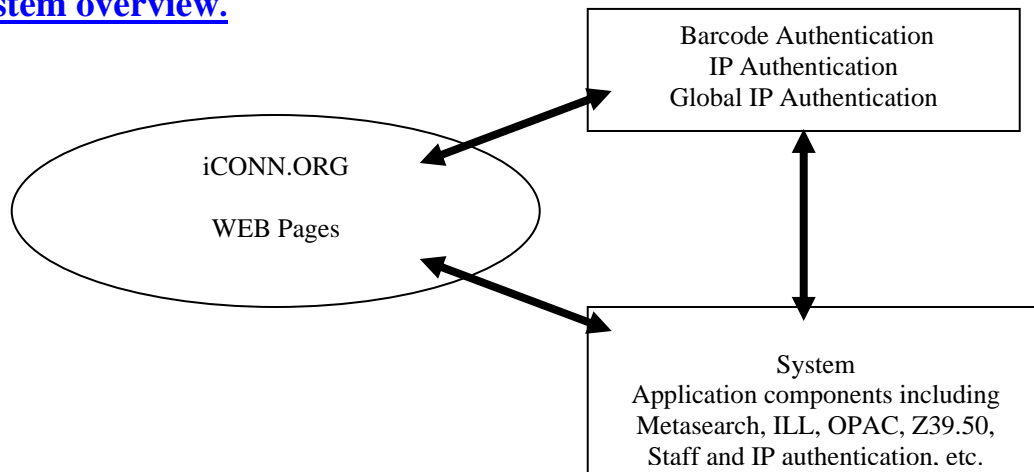
Current functionality of iCONN Authentication system

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iCONN.org Authentication and Authorization

System overview.



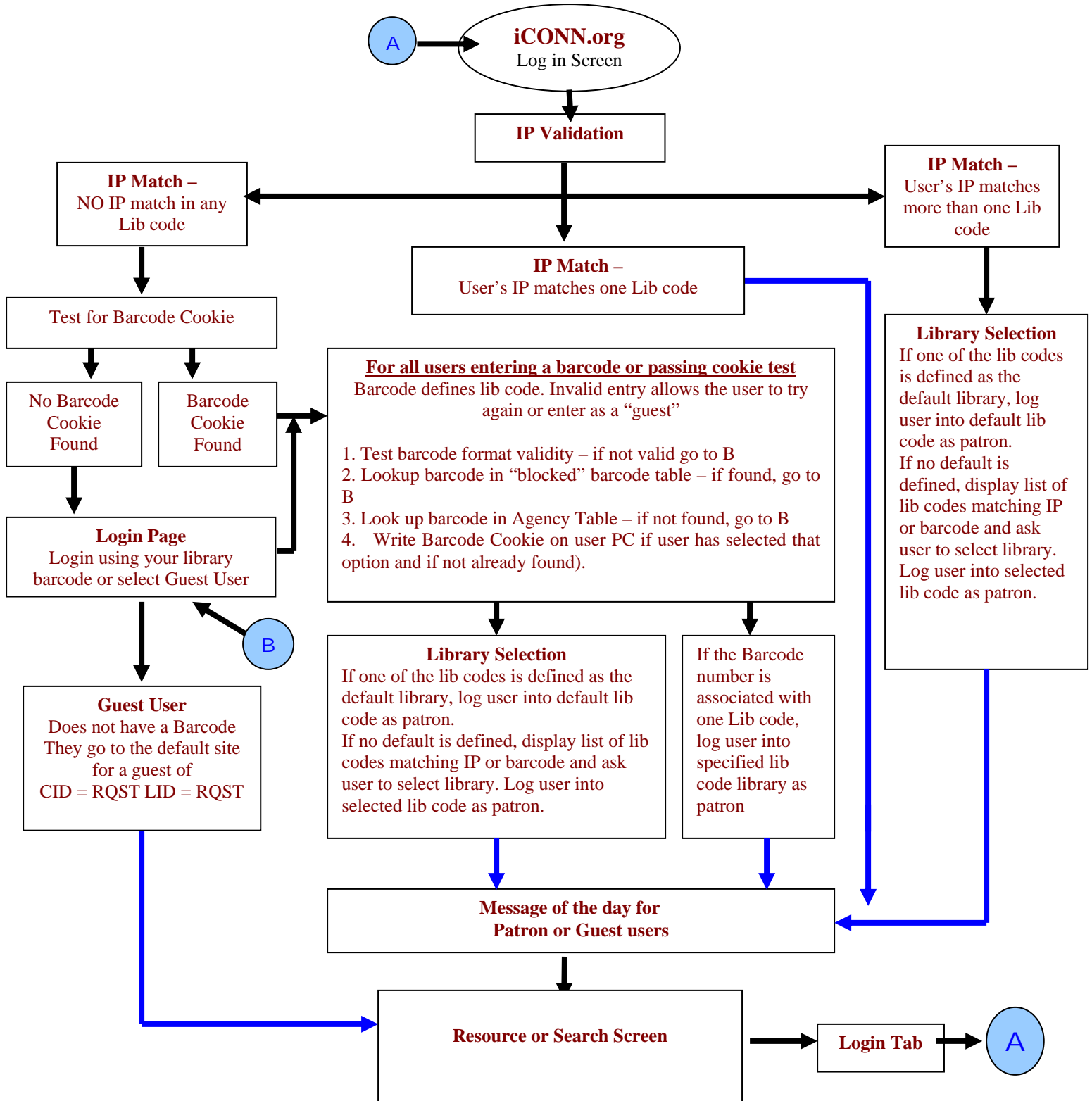
The chart above is to illustrate how the overall system has been put together for Customer using the existing system components and two customized modules. Because the State's barcodes require specialized logic for the validation of a user barcode, the primary authentication of a user is provided in a separate module (more on the barcode logic later). The system uses existing Staff and IP authentication components. The third major system element was the development of the iCONN.ORG site. iCONN.ORG represents a group of web pages both dynamic and static that provide information for both patrons and staff users of the system.

While this document is not intended to define or layout the iCONN.ORG web pages, it is important to note that the implementation has been to enhance many of the existing pages that were "static" text to now be dynamically generated from the various system tables or from newly-defined tables (such as the AGENCY table, which is the primary barcode authentication table).

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User Login Workflow

This section of the document recaps the workflow that the system uses to authenticate a user when he or she accesses the iCONN.org site. We review the process used to authenticate staff, guests and patrons as they log into the system.



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A review of the process as documented in the flowchart on the preceding page:

Step 1: Authentication

When a user enters this URL, the first process is to check the IP table to see if the user is within a range of, or at a specific IP for, one or more of the library codes listed in the IP table.

If a user's IP is in the table:

If the IP is found in the table for exactly one lib code,

Redirect the user to message of the day page (if a message exists) and then on to the default search screen for the patron/patron record of the specific lib code after the default time delay or when the user presses "enter"

Else

If the IP is found in the table for more than one lib code,

If one of the lib codes is defined as the default library, the user is logged into the default lib code as a patron. If no default is defined, the system displays the list of matching lib codes and the user is required to select a library. The user is then logged into the selected lib code as a patron.

The system reads the lib codes from the User DB IP Table that matches the IP of the user's terminal or workstation. The lib codes are then matched against the AAgency table. The AAgency table drives the display of the library name(s) that are displayed in the lookup/select function for the patron to choose which library they want to connect to.

Else

If the IP is NOT found in the table

Check the PC for the existence of a Barcode Cookie

If a Barcode Cookie is found, the system must check the barcode for validity as described below.

If a Barcode Cookie is not found, the user is presented with a "login" screen giving the user three options. They may enter a barcode (and be given the option of checking the "save barcode" box) or click the "Try This" button which validates the user against a global IP table or enter as a guest. The current login screen is seen below.

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The screenshot shows the iCONN.org website interface. At the top, there is a navigation bar with the iCONN.org logo and the text "connecticut's research engine". Below this, there are two tabs: "About iCONN" and "Add iCONN To Your Mobile Device". The main content area is divided into several sections. On the left, there are links to various resources: "Articles", "Newspapers", "Science Reference Center", "History and Genealogy", "Biographies", "Audiobooks", "CT Digital Collections", "Referencia Latina", and "Statewide library catalog". On the right, there is a "To Begin Searching:" section with a form to "Enter Your Connecticut Library Card Number:" and a "LOGIN" button. Below this, there is a checkbox for "Remember my card number on this computer." and a note about the "Request this Item" service. At the bottom, there are links for "CT Residents" and "Guest Login".

When a barcode is entered the system first checks the validity of the barcode using either the 14-digit or 10-character barcode logic.

14 Digit Logic

The system applies the modulus 10 check digit calculation to insure that the 14 digits entered represents a valid 14 digit barcode.

Here is how a mod10 check digit is calculated:

1. For this example, we use a barcode containing the data 12345678912. Starting from the left side of the bar code, add together every other digit, ignoring the check digit. Add the first, third, fifth, seventh, ninth, and eleventh digits:

$$1+3+5+7+9+2=27$$

2. Multiply the result from step 1 by 3:

$$27*3=81$$

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3. Add together the remaining digits. Add the second, fourth, sixth, eighth, tenth, and twelfth digits:

$$2+4+6+8+1=21$$

4. Add the results of steps 2 and 3:

$$81+21=102$$

5. Find the number which, when added to the result from step 4, generates a number that is evenly divisible by 10:

$$102 + n = 110$$

$$n = 8$$

The number 8 is the mod10 check digit for this arrangement of digits.

10 Digit logic

The 1st character of the string entered has to be a D followed by 8 numbers

The next 8 digits are multiplied by decreasing integers (the 2nd digit is multiplied by 9, the 3rd digit by 8 and so on) then summed.

The sum is divided by 10 and the remainder taken.

The remainder is subtracted from 10.

This result is divided by 10 and compared to the last digit in the barcode.

```
Function IsValid10Barcode(ByVal barcode)
```

```
Dim intArray(11), sum
```

```
Dim i
```

```
Dim iLastDigit
```

```
    If Left(barcode,1) <> "D" Then  
        IsValid10Barcode = false  
        Exit Function  
    End If
```

```
    sum = 0  
    intArray(0) = 0  
    For i=2 to 10
```

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```
        intArray(i) = CInt(Mid(barcode,i,1))
Next

' 1. Multiply position 2 through 9 by decreasing numbers, starting with 9
' 2. Add the result

For i=2 to 9

        intArray(i) = intArray(i)*(9-(i-2))
        sum = sum + intArray(i)

Next

' 3. Divide the total by 10

sum = sum MOD 10

' 4. Subtract the remainder from 10 to find the check digit
' The rightmost digit of the result is the mod 10 check digit

sum = 10 - sum
iLastDigit = sum Mod 10

If iLastDigit = intArray(10) Then
    IsValid10Barcode = true
Else
    IsValid10Barcode = false
End If

End Function
```

If the barcode is not valid, an error message is displayed and the user is returned to the login screen.

If the user's barcode is valid, the system then does a lookup in the "blocked" barcode table. This table contains specific barcodes or ranges of barcodes that are not allowed access to the system. This table is maintained through its own administrative module. If the barcode is found in the table, an error message is displayed and the user is returned to the login screen.

If the user's barcode is valid and is not in the blocked barcode table, the system does a lookup of the barcode's agency code in the AAgency table. If the identifier is not found, an error message is displayed and the user is returned to the login screen.

If a barcode passes all three checks, write a barcode cookie on the users PC if the user has selected that option and if the barcode cookie is not already there.

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The AGENCY table includes an entry for every lib code associated with a barcode.

If the user clicks the “Try This” button the user’s IP is checked against a global IP table and if the IP is within the state of CT the user is granted access to the library associated with the global IP set-up. Via the AGENCY staff interface the customer super user has the ability to control which state is validated and the set a confidence factor from 0 to 100. The confidence factor is assigned by Quova when IP’s are added to the database the higher the number the more confident Quova was when assigning the location of the IP.

Then the system takes the user to the message of the day (if it exists) and then on to the resources or search screen associated with the lib code

Else

If the barcode number is associated with more than one lib code and one of the lib codes is specified as a default

Then the user is logged into the default lib code.

Else,

The list of libraries associated with the matching lib codes is displayed then the user will be asked to select a library. The user is then logged into the selected library.

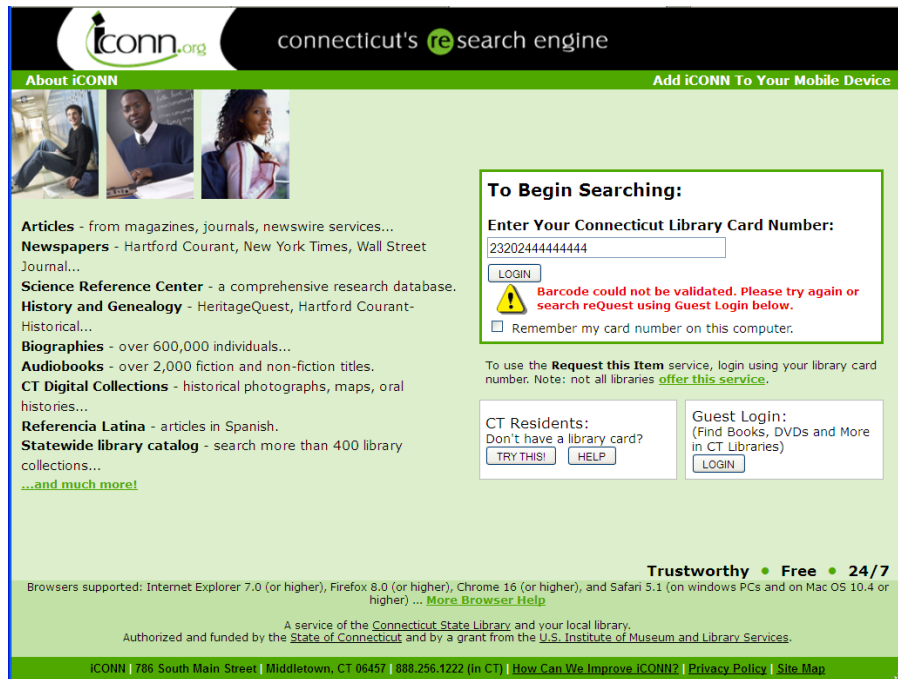
A guest login directs the user to customer id = RQST and library id = RQST.

The authentication system does not create user records as requested by Customer for each patron; rather, all authenticated users enter the system as a Patron/Patron user. The lack of a user record for each patron means that some functions such as search history, user preferences, etc., are not available to those patrons.

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Below are the sample screens of the error messages that are created should a user not be authenticated.

Invalid Barcode.



The screenshot shows the iCONN.org website interface. At the top, there is a navigation bar with the iCONN.org logo and the text "connecticut's re search engine". Below the navigation bar, there are two tabs: "About iCONN" and "Add iCONN To Your Mobile Device". The main content area is divided into two columns. The left column lists various services: Articles, Newspapers, Science Reference Center, History and Genealogy, Biographies, Audiobooks, CT Digital Collections, Referencia Latina, and Statewide library catalog. The right column is titled "To Begin Searching:" and contains a form for entering a Connecticut Library Card Number. The card number entered is "2320244444444". Below the input field is a "LOGIN" button. A yellow warning icon is displayed next to the message: "Barcode could not be validated. Please try again or search reQuest using Guest Login below." There is also a checkbox for "Remember my card number on this computer." Below the login form, there are two boxes: "CT Residents: Don't have a library card?" with "TRY THIS!" and "HELP" buttons, and "Guest Login: (Find Books, DVDs and More in CT Libraries)" with a "LOGIN" button. At the bottom of the page, there is a footer with the text "Trustworthy • Free • 24/7" and a list of supported browsers: Internet Explorer 7.0 (or higher), Firefox 8.0 (or higher), Chrome 16 (or higher), and Safari 5.1 (on windows PCs and on Mac OS 10.4 or higher). There is also a link to "More Browser Help". The footer also includes the text "A service of the Connecticut State Library and your local library. Authorized and funded by the State of Connecticut and by a grant from the U.S. Institute of Museum and Library Services." and a navigation bar with links: "iCONN | 786 South Main Street | Middletown, CT 06457 | 888.256.1222 (In CT) | How Can We Improve iCONN? | Privacy Policy | Site Map".

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Barcode's Agency value does not match LID in the URL (Barcode: 23620 00400 4972)

Your barcode does not match the requested library.
Select one of the following:

Enter [iCONN - Connecticut's Re-search Engine](#) as a **Guest**

Enter [Mark Twain Library Association Inc.](#) as a **Patron**

All iCONN resources are available in Patron mode. Some iCONN resources are not available in Guest mode.

iCONN | 786 South Main Street | Middletown, CT 06457 | 888.256.1222 (in CT) | [Send A Comment](#) | [Privacy Policy](#) | [Site Map](#)

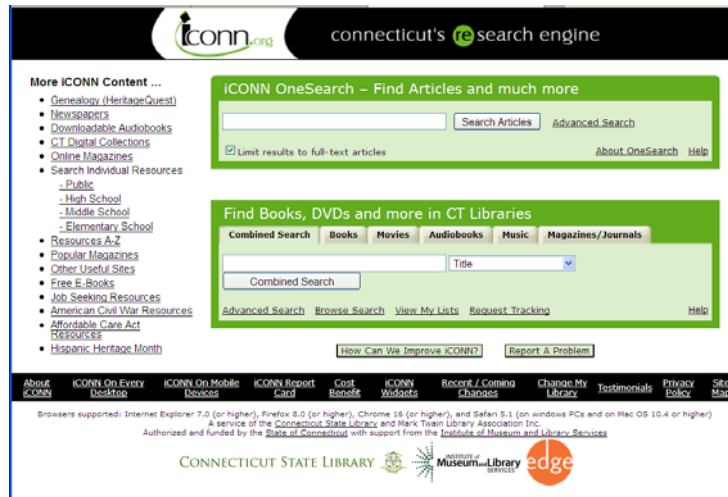
The above does not apply as of Sep 2009. The system has been redesigned to take the user to the landing page that is associated with the user's agency code regardless if the URL they started with contained a LID.

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URL: <http://rqst-agent.auto-graphics.com/homepages/customerwide/iconnLandingPublic.asp?class=ilp&cuid=rqst&cusrvr=pandora&lid=cpl&dataid=&barcode=&term=&qmisc=&s=&URLEncode=>

Test Barcode: 23620 00400 4972

Lands on landing page for Mark Twain Library Association



Landing page for a library that uses AGent VERSO Circ ILL (CILL). When a patron's barcode validates and is associated with a library that uses the AG AGent VERSO CILL product a special landing page is displayed. The patron's barcode is retained and populated into Connecticut Library Card term input box. If the patron enters their AGent VERSO password the system will automatically connect the patron to their AGnet VERSO patron account so they search their local library catalog and the RQST Union catalog, place ILL request if their patron record has the proper permissions and track ILL requests that have been placed.

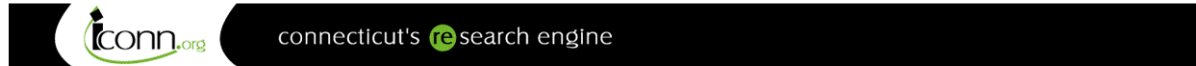
Direct Link URL: <http://rqst-agent.auto-graphics.com/homepages/customerwide/default.asp?lid=ehp>

Test Barcode: 24120000000099



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Invalid LID on URL – although LID are not to be “keyed” the system must report such an error. This error can only occur if a user is trying to access the system as a guest. If the user entered a valid barcode the system overrides the LID in the URL and takes the user to the LID associated with the barcode.



The library code is invalid!
Please contact Auto-Graphics support desk at:
(800) 852-8686
[Try Again](#) [Close](#)

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Staff Login to iCONN

A service of the Connecticut State Library and your local library in partnership with the Department of Higher Education.

Library:

User Name or Barcode:


Password or PIN:

Thank You for Using iCONN

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The users barcode matches multiple libraries and there is no default. (Barcode: 22511 00000 0000)



The screenshot shows the iCONN.org search engine interface. At the top, there is a black header with the iCONN.org logo and the text "connecticut's re search engine". Below the header is a green horizontal bar. The main content area is light green and contains a white dialog box titled "Select a library:". To the left of the dialog box is a small image of a library interior. The dialog box contains two lines of text, each with a light orange background:

- Enter [Manchester Community College Instructional Media Center](#) as a Patron
- Enter [Manchester Community College Library](#) as a Patron

At the bottom of the page, there is a green footer with the following text: "iCONN | 786 South Main Street | Middletown, CT 06457 | 888.256.1222 (in CT) | [Send A Comment](#) | [Privacy Policy](#) | [Site Map](#)".

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The barcode is valid, but does not match any library code. (Barcode: 20330 00000 0007)

iconn.org connecticut's **re**search engine

About iCONN Add iCONN To Your Mobile Device

Articles - from magazines, journals, newswire services...
Newspapers - Hartford Courant, New York Times, Wall Street Journal...
Science Reference Center - a comprehensive research database.
History and Genealogy - HeritageQuest, Hartford Courant-Historical...
Biographies - over 600,000 individuals...
Audiobooks - over 2,000 fiction and non-fiction titles.
CT Digital Collections - historical photographs, maps, oral histories...
Referencia Latina - articles in Spanish.
Statewide library catalog - search more than 400 library collections...
[...and much more!](#)

To Begin Searching:
Enter Your Connecticut Library Card Number:
20330000000007

 Cannot find a library associated with the barcode. Please try again or select the guest mode below to access the system.
 Remember my card number on this computer.

To use the **Request this Item** service, login using your library card number. Note: not all libraries [offer this service](#).

CT Residents:
Don't have a library card?

Guest Login:
(Find Books, DVDs and More in CT Libraries)

Trustworthy • Free • 24/7
Browsers supported: Internet Explorer 7.0 (or higher), Firefox 8.0 (or higher), Chrome 16 (or higher), and Safari 5.1 (on windows PCs and on Mac OS 10.4 or higher) ... [More Browser Help](#)

A service of the [Connecticut State Library](#) and your local library.
Authorized and funded by the [State of Connecticut](#) and by a grant from the [U.S. Institute of Museum and Library Services](#).

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The barcode is blocked (Barcode:20233 00000 0045) using the AGenT Blocked barcode function



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- Articles** - from magazines, journals, newswire services...
- Newspapers** - Hartford Courant, New York Times, Wall Street Journal...
- Science Reference Center** - a comprehensive research database.
- History and Genealogy** - HeritageQuest, Hartford Courant-Historical...
- Biographies** - over 600,000 individuals...
- Audiobooks** - over 2,000 fiction and non-fiction titles.
- CT Digital Collections** - historical photographs, maps, oral histories...
- Referencia Latina** - articles in Spanish.
- Statewide library catalog** - search more than 400 library collections... [...and much more!](#)

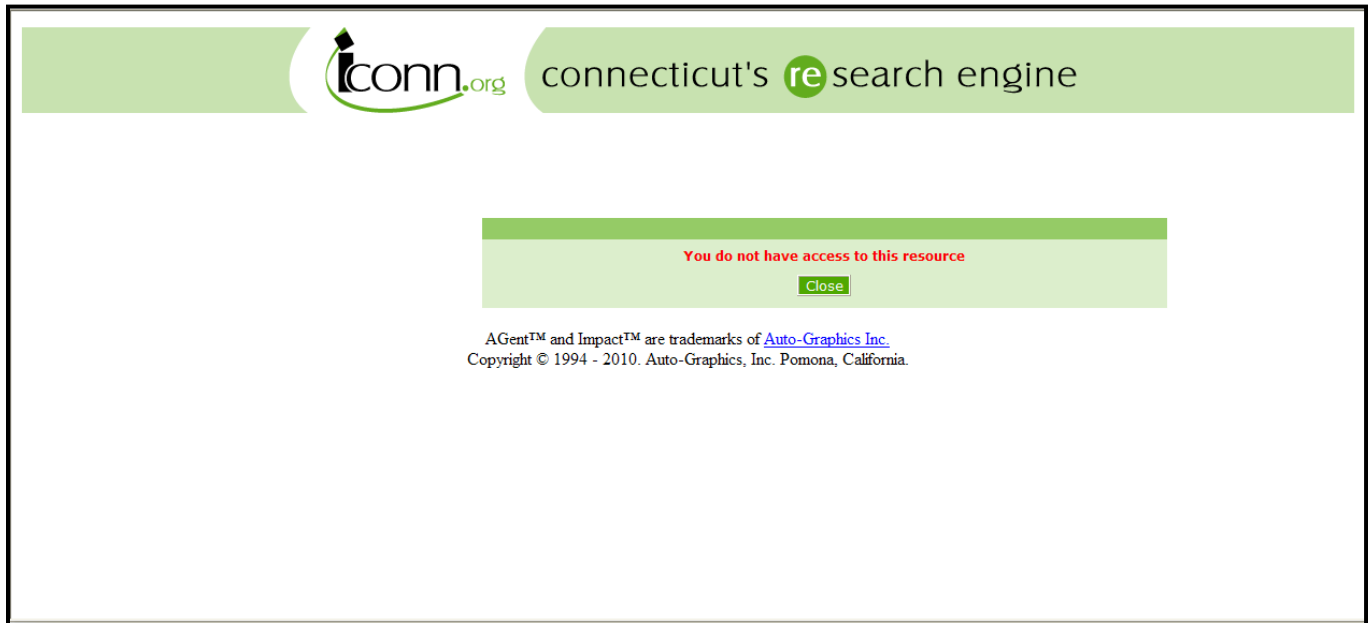
On the right side, there is a "To Begin Searching:" section with a form for "Enter Your Connecticut Library Card Number:". The card number entered is "20233000000045". Below the input field is a "LOGIN" button. A yellow warning icon is displayed next to the text: "Barcode is not authorized. Contact the issuing library for additional information." There is also a checkbox for "Remember my card number on this computer." Below this, there is a note: "To use the **Request this Item** service, login using your library card number. Note: not all libraries offer this service."

At the bottom of the page, there are two boxes for "CT Residents: Don't have a library card?" with "TRY THIS!" and "HELP" buttons, and a "Guest Login: (Find Books, DVDs and More in CT Libraries)" with a "LOGIN" button.

At the very bottom, there is a footer with the text: "Trustworthy • Free • 24/7", "Browsers supported: Internet Explorer 7.0 (or higher), Firefox 8.0 (or higher), Chrome 16 (or higher), and Safari 5.1 (on windows PCs and on Mac OS 10.4 or higher) ... [More Browser Help](#)", "A service of the Connecticut State Library and your local library. Authorized and funded by the State of Connecticut and by a grant from the U.S. Institute of Museum and Library Services.", and "iCONN | 176 South Main Street | Middletown, CT 06457 | 888.256.1222 (in CT) | [How Can We Improve iCONN?](#) | [Privacy Policy](#) | [Site Map](#)".

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The barcode is not valid for direct link and the associated dataid within that library code. (dataid=198, barcode=22501015893622, lid=3mct) This error is when a patron might try to connect to a database from a “direct link” on the library’s home page. Should not happen but had to cover the condition.



Step 2: Message of the day

When a user is validated and redirected to his/her selected or defined library code, the system first displays the message of the day (if it exists). Below is an example of the message of the day as it currently exists:



After the message of the day is displayed, the user is taken to the search screen or resource screen of the appropriate lib code or to the default library and customer code of RQST/RQST as a guest.

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The user may wait for the system to “timeout” on the message of the day (which will take the user directly to the resources screen) or, they can click on the link to go to the resources as noted by the “Click here for Resources” link displayed above.

Note: Because a timeout feature has been added to the message of the day, it is possible for a terminal in the library, which is IP authenticated, to appear as if it never displays the message of the day. For example, a browser is opened in the library (IP authenticated) to iCONN.org. Because the terminal is IP authenticated, the system displays the message of the day. But after “X” seconds it goes to the resources/search screen. In this example, a user walking up to the monitor would never see the message of the day. To address this issue, the message of the day is accessible to staff and guest/patrons via their appropriate staff or patron menus.

The timeout automatically causes the message of the day screen to “close” after the designated time and the user is presented with the appropriate user class search screen for his/her specific library.

The message of the day has an administrative interface for Customer staff to manage the message(s) of the day. The system will support three types of messages: one for staff, one for patrons, and one for guests. The system will allow Customer to create up to 99 different messages per user type. This approach will allow iCONN to display one message while simultaneously allowing Customer staff to create additional messages to be displayed for specific dates or date ranges. The system will determine which message is displayed based on user type and date.

Staff Messages

Message 1 to X:
Start Date:
End Date:
Timeout: in milliseconds
Graphic:
Text Message

Guest Messages

Message 1 to X:
Start Date:
End Date:
Timeout: in milliseconds
Graphic:
Text Message

Patron Messages

Message 1 to X:
Start Date:
End Date:
Timeout: in milliseconds
Graphic:
Text Message

Messages of the day will be a customer-level option. All users of the system will see the same messages (dependent upon user type) regardless of which library code they authenticate to.

If no message of the day has been defined, or if no dates have been entered, the pop-up message will not display and the user will be taken directly to the Resource Screen.

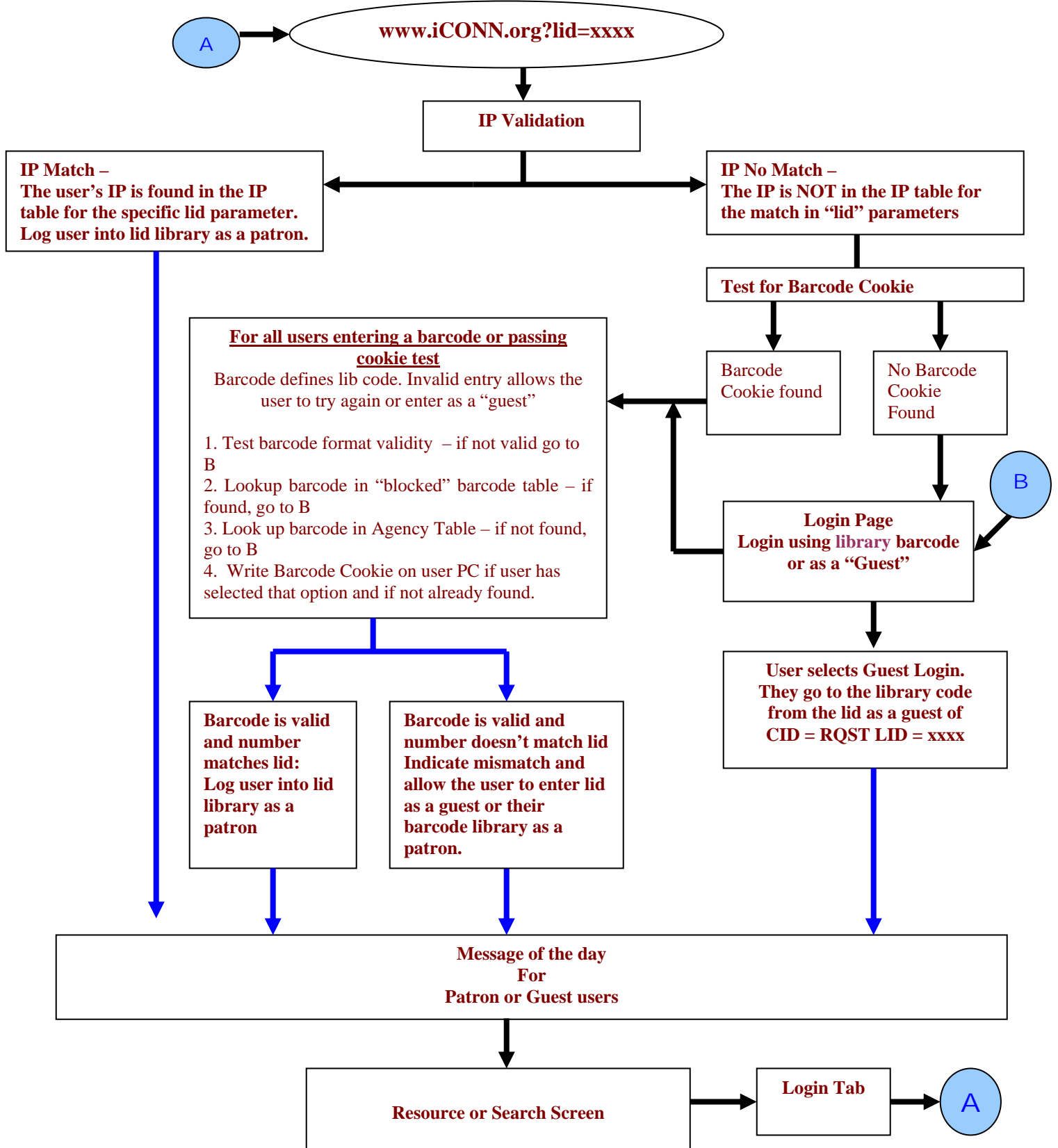
The administrative module does not currently include a function to manage the graphics. Customer staff may send graphics to the vendor-designated Webmaster who will upload the graphics and Customer

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staff may put such link(s) into the message of the day. Alternatively, graphics may be managed on a local server by Customer and linked appropriately.

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Enhanced URL support for staff and library specific access



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Special Case URLs

For reQuest participating libraries, Customer promotes use of the enhanced URL to provide library-specific access to the system. This eliminates the need for any reQuest user or staff person to have to choose their library in order to use the system with full patron privileges.

Note: if a user logs in as Guest using the unique URL of a reQuest participating library, the user will get access to that library's customized reQuest services.

Staff User

To address these special needs, the system supports two sets of parameters to provide more direct access for staff

We will support the "mode =" parameter as well as the "lib code =" parameter. A user can append either or both of these parameters to the iCONN.org URL.

Example: <http://www.iconn.org/default.asp?lid=frml&mode=s>

Mode parameters will be:

"Mode = s". Go to the staff login directly – no other option is needed and all other values for mode will be ignored.

If the user enters a URL with the "mode = s" parameter, the system goes to a special login page that is designed to tie in with existing iCONN.org style.

Note: If the lid is not provided, the library code will be blank and the user will fill in the field or use the lookup function.

Note: For Staff logins, if the "lid=" parameter is provided, and it is valid, the system will pre-select the pull-down of system lib codes, and position the user on the user-id field of the login screen.

If the lid is provided, the value of the parameter will be inserted into the lib code text box so that the user does not have to enter this information. The cursor will remain on the lib code text box so the user can change it or can use the tab key to move down to the user id field.

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Library-specific URLs with IP matches

Example: [www.iconn.org?\\$lid=fpl](http://www.iconn.org?$lid=fpl)

Note: Not using the “mode = s” parameter here.

Entering this URL allows the system to do all the same checking for IP or barcodes but, rather than looking at all libraries in the system, the system checks against this specific lib code only.

The lid parameter is used to define which lib code will be used for the user to connect to. If a user connects to iCONN using a library-specific URL, such as [www.iconn.org?\\$lid=fpl](http://www.iconn.org?$lid=fpl), if the IP of the user terminal is found in the User DB IP table for FPL, then the user is shown the Message of the Day and is then taken to the resource screen for FPL.

Note: It is possible for an IP to exist in the table for more than one lib code, but because the URL contains the “lid=” parameter, the user is directed to only that library with no other checking.

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Library-specific URLs with No IP matches

When the IP does not match the requested library-specific URL, the system checks for a Barcode Cookie. If a Barcode Cookie is found, the barcode is authenticated as described below. If a Barcode Cookie is not found, the user is given the choice of either logging in as a Guest or entering a barcode. If the user enters as a Guest, they will go to the lib code CID=RQST LID=XXXX. If the user enters a barcode, the system performs barcode authentication (which includes reference to the blocked barcode table).

IF the barcode is validated, a cookie is written on the users PC if the user has selected that option and if the cookie is not already there.

THEN IF the barcode number is associated with the same lib code that is entered in the “lid” parameter,

THEN the user is validated and taken to the message of the day, etc.

ELSE a mismatch message is displayed and the user is given two choices:

1. Enter the lib library as a guest; or,
2. Enter their barcode library as an authenticated patron.

ELSE the barcode is not valid, and the user is presented with the option to enter the requested library as a guest or to reenter the barcode.

Dealing with existing URLs

An “existing URL” user is a user who is accessing the system not from iconn.org but rather from a specific URL assigned for a specific library code.

Example: `rqst-agent.auto-graphics.com/agent/login.asp?cid=rqst$lid=cccl$mode=s` is redirected to iconn.org with the appropriate parameters.

Dissemination of unique iCONN/reQuest URLs

All libraries that participate in reQuest are asked to post their unique URL on their home page (if they have a home page) or to otherwise disseminate that URL to their patrons for both onsite and offsite access to iCONN and to their library’s customized version of reQuest. If the unique URL is used, there is no need for the user to select their library from a drop-down menu. Accordingly, promoting the unique URL results in easier access to iCONN and reQuest.

Further, any patron who uses the unique URL can choose to enter as a “Guest” (rather than entering their library card number) and be given access to the customized version of reQuest but not the licensed databases (today’s unique URLs provide the same capability).

If the generic URL is used, and IP or barcode authentication cannot identify the specific library (because several libraries share the same IP address and agency code), and the offsite or home user chooses not to

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enter as a Guest, then a default library is selected if a default library has been designated in the AAgency table. If no default library has been specified in the AAgency table, the user is asked to select their home library from a list presented by the system. Individual libraries and school districts have the opportunity to specify which library will be the default, or to specify that there should not be a default, in which case the user is asked to select a library from a list presented by the system.

Any library that does not participate in reQuest would use the generic www.iconn.org URL.

Issue – Guest Access

Any library with PAC Admin privileges (= any library who is a reQuest participant) is not able to designate "Guest" access to any iCONN resource that has authentication specified.

Special LIB CODES for High School, Middle School, and Elementary School

1. If a user accesses the system from one of the following URLs:

Middle School

<http://rqst-agent-auto-graphics.com/homepages/customerwide/iConnLogin.asp?cuid=rqst&cusrvr=pandora&lid=&dataid=&class=m&barcode=&term=&qmisc=&s=&URLEncode=>

High School

<http://rqst-agent-auto-graphics.com/homepages/customerwide/iConnLogin.asp?cuid=rqst&cusrvr=pandora&lid=&dataid=&class=s&barcode=&term=&qmisc=&s=&URLEncode=>

Elementary School

<http://rqst-agent-auto-graphics.com/homepages/customerwide/iConnLogin.asp?cuid=rqst&cusrvr=pandora&lid=&dataid=&class=e&barcode=&term=&qmisc=&s=&URLEncode=>

System validates the IP or a barcode that is entered on the [iconn.org](http://www.iconn.org) page. The IP is checked against the IP table and the barcode is checked against the agency table. If validation passes, in either case, we direct the user to the classic page that is associated with one of the URL's above and force a default libcode for each of the classic pages.

Elementary School = elms

Middle School - mids

High School = higs

2. If the user performs a federated search from the classic page that supports the search functions the search is done against the default libcode that is associated with the classic page.

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3. If the user, after performing a federated search, returns to the keyword search screen and selects "Link to Individual Resources" the user is returned to the classic page that is associated with the default libcode that is set-up for the Elementary, Middle, and High School classic pages.
4. Administration for the new lib codes representing high, middle, and elementary schools are handled via PAC Administration; and is no different than administering any of the lib codes in RQST. Replication to the new sites is not required since each site represents a specific type of school library and is maintained individually.

Note: Items 1, 2 and 3 is accomplished by hard coding the default libcodes and return to classic page operations. This functionality is only associated with the classic page URLs represented in 1 above.

AGency Table Specifications

AGency Table Purpose: The AGENCY table is used (a) to authenticate users for barcode access; (b) as a verified source of library name displays for spell-outs for the ReQuest holdings display and the system Resource Menu; and (c) as a source of lib codes to provide access to ReQuest functions from unique URLs.

Criteria for inclusion of lib codes in the AGENCY table: Lib codes must be in the AGENCY table if they meet at least one of the following qualifications:

1. Have holdings in the ReQuest databases, either Serials or Main Catalog (since the AGENCY table will be used for the spell-outs for ReQuest holdings display and the system Resource Menu);
2. Subscribe to PAC Admin since the AGENCY table will be used to provide a unique URL for access;
3. Are a registered iCONN database participant (since the AGENCY table will be used for authentication).

There must be one entry in the table for every unique agency code/lib code combination.

Libraries have only one agency code but may have either 14 character barcodes OR BOTH 14 character and 10 character barcodes.

The agency code associated with 14-digit barcodes equals the first five positions of the 14-digit barcode. The agency code associated with 10-character barcodes is obtained from a table that associates the first four characters of the 10-character barcode with the related five position agency code.

1. Libraries with one barcode prefix and one lib code have one entry in the table.
2. Libraries with one barcode prefix and more than one lib code have an entry for each lib code.

For example: Three Rivers Community College has two campuses, each with their own lib code. They also use both 10 and 14 character barcodes. The 10 character barcodes start with D310 and the 14 character barcodes start with 23870. They have two entries in the table, one for 3MCT and one for 3TCT:

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Lib Code	Barcode Prefix	Agency code	Library Name
3MCT	D310 or 23870	23870	Three Rivers Community College (Mohegan Campus)
3TCT	D310 or 23870	23870	Three Rivers Community College (Thames Valley Campus)

Conventions:

1. Libraries that participate in ReQuest and libraries that have holdings in ReQuest have unique, Auto-Graphics-created Lib codes.
2. The Agency Codes for all libraries that participate in Request and/or have holdings in request, but are not registered to use iCONN databases are blank.
3. The Agency code is used for Lib code for libraries that are registered to use iCONN databases but do not participate in or have holdings in ReQuest.

Lib codes are not required in the AAgency Table if

1. They have been marked OBSOLETE.
2. They are used for administrative, testing, or demo purposes (this includes AAPUBLIC, AACOLLEGE, etc., as well as DEM1, DEM2, ROC1, ROC2, etc.
3. They are “reserved” for libraries that do not meet at least one of the three qualifications above. The reserved Lib codes will remain in the system Profile Table as maintained by the vendor.

Additional AAgency code Table Notes:

A Library Type is assigned to each Lib code that has access to iCONN subscription databases. The Library Type indicates which group of databases (K12, Academic or Public) may be accessed from the library. If the library is not registered to use iCONN databases, the Library Type is blank.

When there is more than one Lib code assigned to an agency code, one of the Lib codes may be established as a default. If a default is assigned to one of the Lib codes in the agency code, users of iCONN.org should be connected to the default Lib code rather than be requested to select the Lib code from a list. If there is more than one Lib code for an agency code and no default is identified, the user is presented with a list of associated Lib codes and be asked to select one from the list.

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Authorization

A key part of system authentication is to provide an authorization function of a user for 3rd party content providers such as Gale, EBSCO, ProQuest, etc. The process of authorization to 3rd party content providers is a primary function already available as part of the federated searching system. The control of the authorization component is done within the system's already-existent administration function. The administrative modules allow for authorization to be the same for all libraries (at the customer level) or unique for each library. Although also available for databases that are authorized for specific users, this functionality is currently not implemented.

To illustrate the process of authorization, see diagrams below showing the **three types of authorization** that could be done using the enhancements put in place for Customer:

Individual Database Links,
iCONN Classic
iCONN Classic from within AGent.

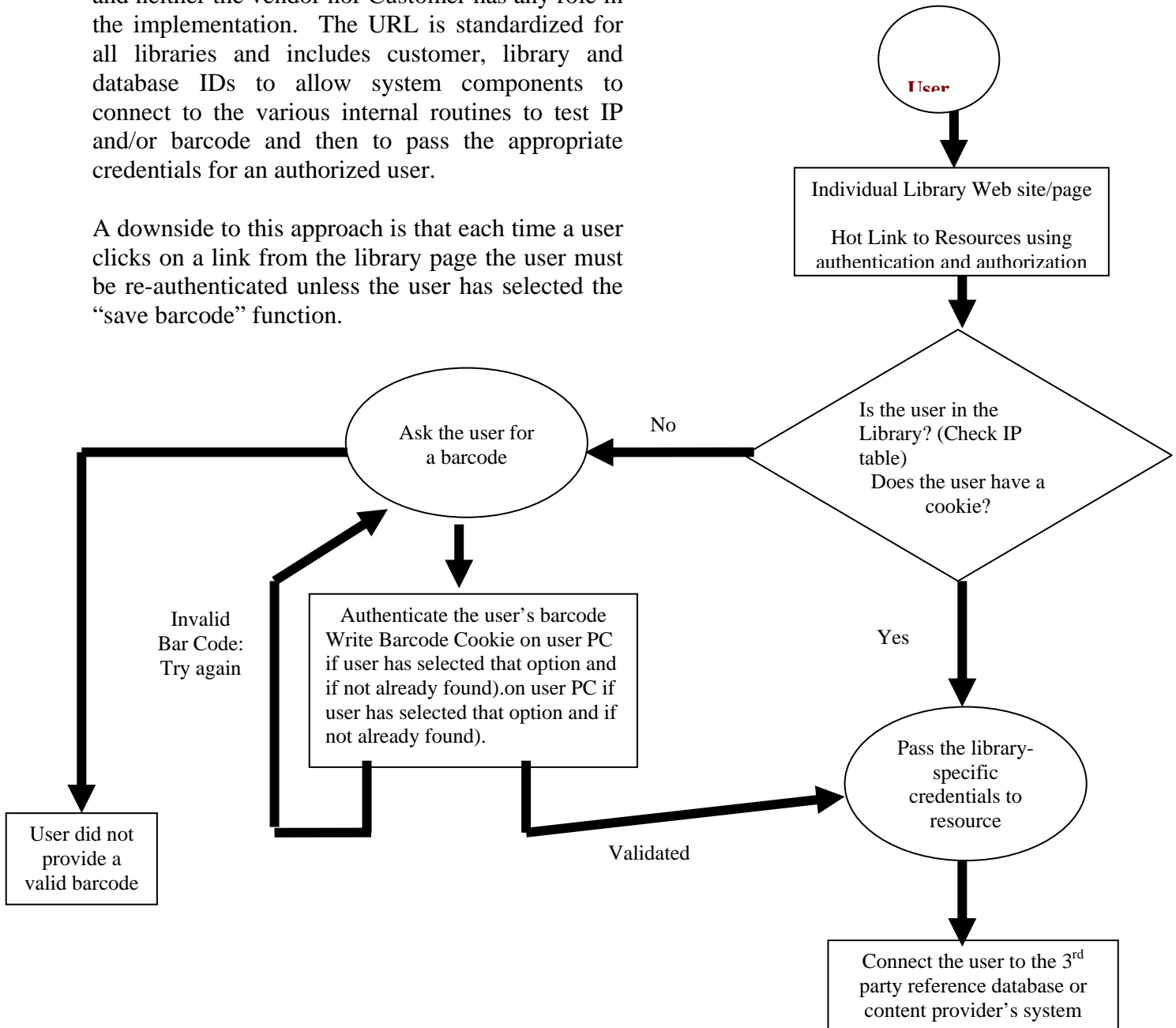
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Individual Database Links

This first diagram provides libraries with the ability to code their own web site or pages with individual links to any one or all of the Customer provided databases. The major advantage of this solution is that libraries may display the links to the resources any way they wish to and are not using the styles or format defined with the current system or the iCONN classic pages.

The individual libraries do the encoding of the links and neither the vendor nor Customer has any role in the implementation. The URL is standardized for all libraries and includes customer, library and database IDs to allow system components to connect to the various internal routines to test IP and/or barcode and then to pass the appropriate credentials for an authorized user.

A downside to this approach is that each time a user clicks on a link from the library page the user must be re-authenticated unless the user has selected the "save barcode" function.

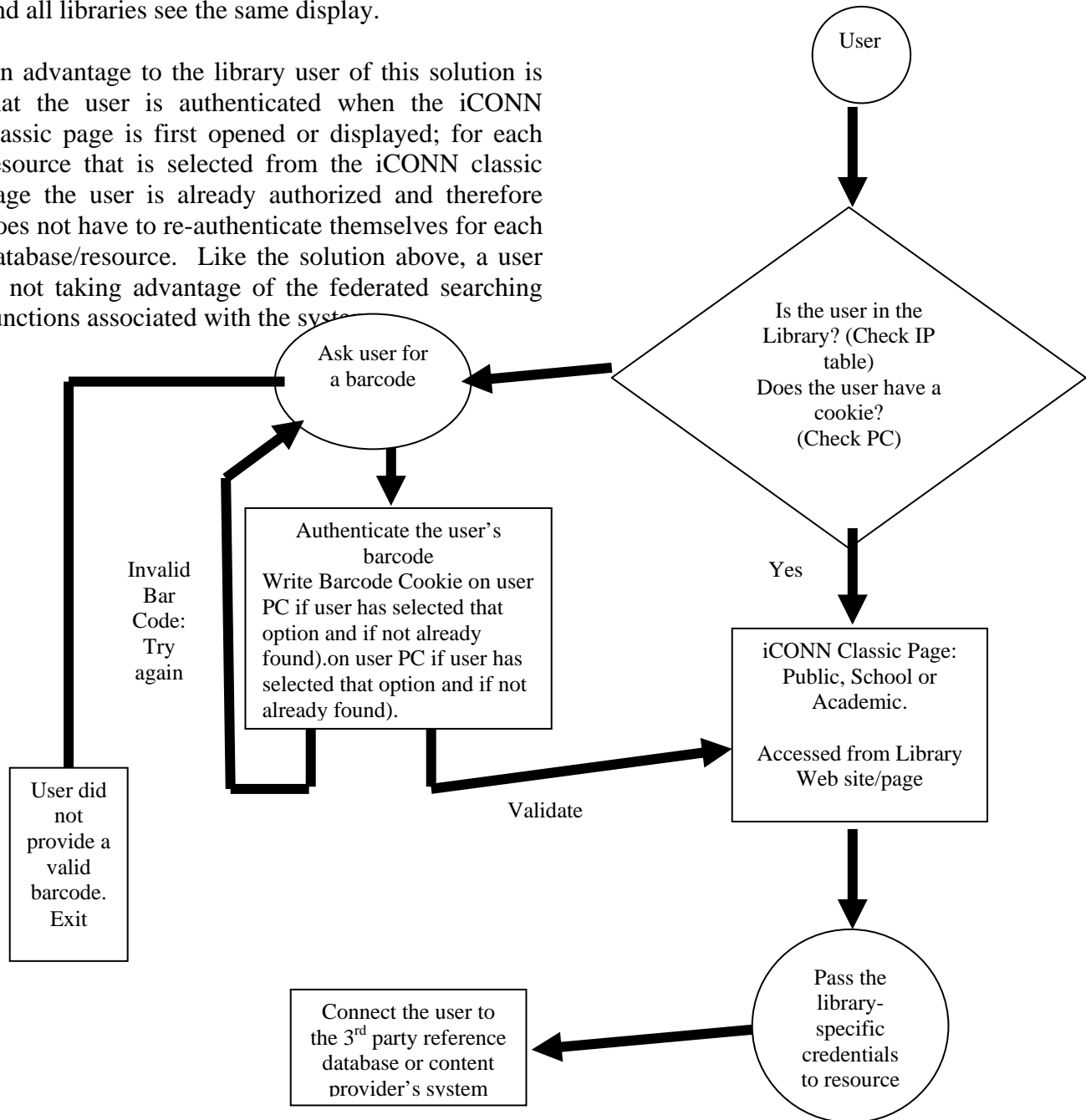


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iCONN Classic

To provide libraries a transition from the older system developed by Customer to the new federated searching environment, the following iCONN classic page solution was implemented. Like the implementation above, individual libraries can “call” the appropriate iCONN classic page from their own web site or web page. However, in so doing the library will be accessing or displaying a page that is designed and controlled by Customer. There are 3 distinct iCONN classic pages for: Schools, Publics, and Academics. The iCONN classic pages are standardized for these three types of libraries and all libraries see the same display.

An advantage to the library user of this solution is that the user is authenticated when the iCONN classic page is first opened or displayed; for each resource that is selected from the iCONN classic page the user is already authorized and therefore does not have to re-authenticate themselves for each database/resource. Like the solution above, a user is not taking advantage of the federated searching functions associated with the system.

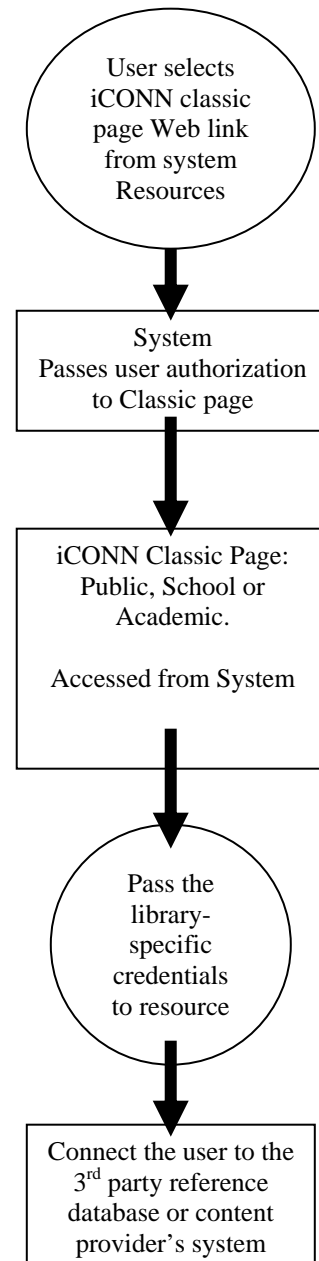


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iCONN Classic from inside AGent

The final implementation of this separate or standalone authentication and authorization process is the design of the iCONN classic pages to be able to be called from inside the system. Using the Web Link function of the resource area of the search pages, a method exists to call the iCONN classic page(s) without requiring the user to be re-authenticated. This was implemented so that users would have access to the older type of single search (as opposed to federated searching) from within the system.

Note: After some initial testing it was determined that unlike the normal authentication of a patron, no guest user should be allowed from a direct link on a home page or from the iCONN Classic page(s). Therefore the system was updated so that a user must be authenticated via barcode to enter the library resource or resources – no guest access is allowed.



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Special Authorization for Lexis/Nexis

No longer used since Lexis/Nexis has been discontinued.

The final implementation of the authentication and authorization system addresses the need for providing specific authorization functionality for the Lexis/Nexis resource.

As defined by Customer, two added checks are required for Lexis/Nexis: the checking of specific valid barcodes and whether the database is always available for use “in the library”.

The implementation enhances the resource definition screen to allow staff to use an option setting in the resource definition screen to define that a database is to be used in-library only and/or check barcode table. These new options may be used for any resource that would require similar authorization that is not part of the standard authorization routines of the system.

The implementation calls for Customer to turn on these two options for Lexis/Nexis only – the options are not needed for any other resource as of the implementation phase of this project, but could be used in the future if such authorization is desired.

Definition and use of the “in library” option. When selected, if the user is in the library, the system allows the user access to the system. “In library” is defined as a user’s terminal having the IP address of a terminal found specifically in the User DB IP table. If this option is on and the user terminal cannot be found in the IP table, then the user is presented with a message that this database is only accessible within the library – no remote access is allowed.

Barcode lookup. The system verifies the user’s barcode against the “valid” barcode table that is controlled in the User Admin function. This “valid” barcode checking is similar to the blocked barcode table in that a user must explicitly have their barcode in this table (or the barcode must be within a range posted within the table) or the user is not allowed access to the database.

When both of the options are on, as is required for Lexis/Nexis, the system checks the IP of the user’s terminal against the library’s “In library” or User DB IP Table. If there is a match, the user is allowed to search the resource and no additional checking is done.

If the IP is not found in the table, then the system compares the user’s barcode (which must have been entered to access the library’s system site outside the walls of the system) against the valid barcode table. If the barcode is found in the table or matches the user’s barcode, then the search is allowed. If not, the system tells the user their barcode is not valid and to please see the library staff.

Rather than hiding the resource from the user altogether, the implementation calls for the resource to be displayed to the user in conjunction with an appropriate message if they cannot access the system. This was invoked for two reasons. First, if a user’s barcode was not in the table, Customer wants the user to ask the library staff and it is assumed that most of the time barcodes are probably just missing from the table, but at least the user would know the resource was available. Second, for resources used only in the library, again the Customer felt it was important to show the resource and tell the user that if they go to the library they could use this resource.

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Defining basic system terms:

- **Staff:** Any user of the system that has access to any one (or more) of the administrative modules of the software at either the state or individual library level.
- **Patron:** Any user that is authenticated by being in the library via specific IP address on his/her workstation or terminal or a user who is authenticated using a barcode that is checked against a custom algorithm.
- **Guest:** Any user who cannot be authenticated as a staff or patron.
- **Authentication:** Process of validating a user as a valid staff member or as a patron. Inability to authenticate a user presumes user is to enter as “Guest”.
- **Authorization:** Ability of the system to provide services to the user (staff, patron or guest) based on his/her authentication. Authorization is also the process of providing appropriate credentials to 3rd party content providers so that an authenticated user can be authorized to use the content from the appropriate 3rd party content provider or to a reference database.
- **Lib code:** Unique identifier used by the system for each library in the system. Lib codes have been associated with specific locations for ILL (interlibrary loan) services. Lib codes are also assigned to specific institutions that require customization of the system such as in the case of portal-only customers.
- **IP Table:** System-wide table used to determine if a user is “in library” or is a “remote user”. The table consists of a list of IP addresses, either single IPs or IP ranges. This table contains the lib code associated with the IPs. Administration of this table is available to Customer staff that have user administration permissions. The IP table is a single table that is organized by library code.
- **Patron (or Patron/Patron) User Record.** Default user record activated for users who have accessed the system from within the library. No user authentication is required, but it is assumed the user is a valid patron because they are physically within a library. This Patron/Patron record is best thought of as what all users (non-staff) were in the older (IOL2) system. There are no preferences or user histories kept for a patron/patron record. Specific patron/patron options can be set by the Customer Superuser and will apply to all patron/patron users on the system.
- **Guest User Record.** Unlike a patron/patron user, a guest user is a person that cannot provide the proper credentials for the AGen software to authenticate the user as a valid Connecticut state user and thereby is provided limited access and functionality within AGen.
- **AGency Table.** This table is used in the barcode validation and lookup of agency codes to library codes. This table is specific to Customer. The AGENCY table is used to identify the specific barcode numbers that match a specific library code and agency code. An included key field is the spell-out of the library name used in the “lookup” function of the customized iCONN login function.

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The AGENCY table also contains information as to whether or not a library participates in RQST, ILL, etc. An administrative module for editing and deleting is provided for this table.

To support a more appropriate library name on the resources screen than those prefixed with the city/town as required for ordering in ILL, the resource page derives the library name from the AGENCY table which is used in the resource heading.

Additional item related to library profile name: Because the library profile name is updated via the AGENCY table, updates to the Participant Record do not change the profile table.

- **Barcode number.** Part of the barcode that is associated with an agency code and the agency code is associated with one or more lib codes.
- **Barcode authentication.** There are two types of library barcodes in use in Connecticut: A Codabar Mod 10 14-character barcode and a Codabar Mod 10 10-character barcode (the latter always starts with a "D"). All libraries using 10-character barcodes also have 14-character barcodes. To authenticate, the system will:
 - Check the barcode length (checking for 14 or 10 positions);
 - Check for a "D" in the first position of any 10-position barcode;
 - Check for a "2" in the first position of any 14-position barcode (note added 9/14/04 and being coded for release as soon as possible);
 - Perform check digit calculation;
 - Check to ensure that the barcode entered is not in the blocked barcode table;
 - Look up agency code for 10-position barcodes. Agency code for 14 position barcodes is the first 5 positions of the barcode.
 - Verify that the agency code is in the AGENCY table.
- **"Home library".** A user's library that is associated with the barcode's agency code or the library that the user has accessed directly by using a URL that includes a lid parameter.
- **Library Profile Table.** Master library control table. Every library that is defined as a "lid" in AGENCY will appear in this table. The table contains the library code and the spell-out. In the past, this table and the IDB (participant table) were not linked. Today, changes in the IDB to a participant name will be reflected in the library profile. This synchronization of the names between the two files was not previously occurring automatically. The library name/spell-out in the library profile is what currently displays on the resource screen.
- **IDB / Participant Record Table.** To clarify, the AGENCY ILL Manager has a table that contains the library code and spell-out. This table also contains all information necessary for the ILL process and is used to store connection information for ISO ILL participants.
- **Staff Login note:** The "lookup" function associated with the staff login screen uses the AGENCY table to display the library code and the library name and town/city. Any of these three columns may be used for sorting the list for the user.

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- **Blocked Barcode Table.** This table contains a list of specific barcodes that are not allowed access to the system under any circumstance. This table is controlled by Customer and applies to all barcodes and all users no matter what library barcode is associated with.
- **“Valid” Barcode Table.** This barcode table is exactly opposite of the blocked barcode table in that barcodes in this table are allowed to access specific resources (designated with the appropriate option setting). If a user’s barcode does NOT appear in this table, access is denied.